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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/453,387	12/02/1999	Thea A Wilkins	23070-095600	2583

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EXAMINER

BAUM, STUART F

ART UNIT	PAPER NUMBER
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1638

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DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/453,387

Applicant(s)

WILKINS, THEA A

Examiner

Stuart F. Baum

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,8-11,13,15 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8-11 and 17-19 is/are rejected.
- 7) ☒ Claim(s) 3,5,13 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

RCE Acknowledgment

1. The request filed on June 2, 2003 in paper no. 22 for a Request for Continued Examination (RCE) under 37 C.F.R. § 1.114, based on parent Application No. 09/453387 is acceptable and a RCE has been established. An action on the RCE follows.

Claims 1, 3, 5, 8-11, 13, 15, and 17-19 are pending.

Claims 4, 6, 14, 16, and 21-26 have been canceled.

2. Claims 1, 3, 5, 8-11, 13, 15, and 17-19 are examined in the present office action.
3. Rejections and objections not set forth below are withdrawn.
4. The text of those sections of Title 35, U.S. Code not included in this office action can be found in a prior office action.

Scope of Enablement

5. Claims 1, 8-11, and 17-19 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for claims limited to an isolated *Gossypium hirsutum* cDNA GhMYB1 of SEQ ID NO:1 encoding SEQ ID NO:2 and *Arabidopsis* and tobacco transformation therewith, to obtain tobacco plants with 1) leaf margins and leaf veins bordered by elongated turgid, "waxy-looking" cells, 2) localized increase in density and to some degree increase in

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length of multicellular trichomes, 3) a notable increase in the basal cell of multicellular trichomes, 4) an increase in the number and density of small, glandular trichomes relative to the untransformed control and 5) a "ballooning" of epidermal cells in an undulating pattern on the surface of the leaf and a proliferation of adventitious roots and an increase in the distribution, number and length of root hairs, all of which are the result of modulating transcription, does not reasonably provide enablement for claims broadly drawn to a method of modulating transcription in a cotton plant comprising transforming a cotton plant with a cotton MYB polynucleotide sequence encoding a cotton MYB polypeptide, wherein the polynucleotide comprises a sequence at least 80% identical to SEQ ID NO:1 and a cotton plant transformed therewith. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims. This rejection is maintained for the reasons of record set forth in the Official action mailed 3/21/2002. Applicant's arguments filed 6/2/2003 have been fully considered but they are not persuasive.

Applicant contends that the specification teaches the highly conserved structural similarities between the claimed cotton MYP transcription factors and other known plant MYB transcription factors from different species. The Applicant contends that the teachings of the specification, in combination with the level of skill in the art, enable the skilled practitioner to identify MYB nucleic acids of the present invention (page 4, last paragraph). The Applicant has submitted a Declaration, filed 6/2/2003 in which Applicant states that the *Gossypium hirsutum* (GhMYB1) ortholog was isolated from *Gossypium arboreum* (GaMYB1) and exhibited 98% amino acid sequence identity with the GhMYB1 polypeptide in the region of the amino-terminal

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DNA-Binding-Domain (DBD) and Applicant explains that the critical region spanning the DBD is conserved among all six cotton GhMYBs and ranges from 54.8% to 84.6% (GhMYB1 vs. GhMYB6) (page 5, paragraph "A"). Lastly, Applicant contends that transforming a cotton plant with the GhMYB1 nucleic acid operably linked to the 35S promoter induced phenotypic changes to cotton fibers.

The Office contends that Applicant has taught the GhMYB1 sequence and the orthologous sequence from *Gossypium arboreum*, and that the two sequences exhibit 98% amino acid sequence identity in the region of the DBD, when compared one to the other. Applicant has also taught that the amino-terminal DBD between all six GhMYB's is conserved. But, the Office contends that all MYB transcription factors have a DBD, and it is not only the DBD that facilitates the specific function of each MYB transcription factor but other regions of the protein which enable a transcription factor to carry out its function, and in the correct spatial and temporal developmental pattern. If this were not the case, then any transcription factor comprising a DBD would be able to complement a plant with a mutant GhMYB1 gene. Applicant has not taught which regions, aside from the DBD are important for the proper activity of Applicant's claimed transcription factor.

Written Description

6. Claims 1, 8-11, and 17-19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This rejection is maintained for the reasons of record

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set forth in the Official action mailed 10/3/2002. Applicant's arguments filed 6/2/2003 have been fully considered but they are not persuasive.

Applicant contends that they have shown a second MYB1 gene with 80% homology to SEQ ID NO:1 in the attached declaration of Dr. Wilkins (sentence bridging pages 6 and 7).

Applicant contends that they have described both the structure and function of a cotton transcription factor MYB1 including a second cotton MYB1 gene with 80% homology to SEQ ID NO:1 and that the skilled artisan would have no difficulty recognizing what is claimed.

Applicant contends that the declaration describes the structure of a cotton MYB transcription factor by comparing two orthologous sequences that share 80% sequence identity with each other. With respect to physical properties, the Applicant contends that the declaration describes fiber properties that are regulated by GhMYB1.

The Office has reviewed the declaration filed 6/2/2003 and does find the purported information that the two orthologous sequences, GhMYB1 and GaMYB1, share 80% homology with each other. Having disclosed two orthologous sequences sharing 80% sequence identity with each other would satisfy the Written Description requirement for claims drawn to sequences that exhibit at least 80% sequence identity with SEQ ID NO:1. Absent that information, one skilled in the art cannot predictably determine the structure of sequences encompassed by the claims based upon the disclosure of the specific sequences. Also, given the lack of disclosed domains characteristic of the MYB1 transcription factor, one skilled in the art would not be able to predict the structure of other sequences within the claimed genus.

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7. Claims 1, 3, 5, 8-11, 13, 15, 17-19 are free of the prior art given the failure of the prior art to teach or reasonably suggest a method of modulating transcription in a cotton plant comprising transforming a cotton plant with a recombinant expression cassette comprising a polynucleotide exhibiting 80% sequence identity to SEQ ID NO:1.

8. Claims 3, 5, 13 and 15 are objected to for being dependent on a rejected base claim and would be allowable if rewritten to not be dependent on rejected claims.

9. Claims 1, 8-11, and 17-19 are rejected.


10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart Baum whose telephone number is (703) 305-6997. The examiner can normally be reached on Monday-Friday 8:30AM – 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson can be reached on (703) 306-3218. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3014 or (703) 305-3014 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist, who may be contacted at 308-0196.

Stuart F. Baum Ph.D.

August 8, 2003


for Elizabeth McElwain

AMY J. NELSON, PH.D.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600